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THIRD-WEEK PREDICTION OF INCOMING POSTSECONDARY DEAF STUDENT PROBATION/SUSPENSION

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Abstract

A questionnaire was developed to identify students at risk of being placed on probation/suspension due to academic difficulties. The questionnaire was administered to 90 profoundly deaf postsecondary students in the third week of their first academic quarter. Analyses revealed high school and postsecondary social and academic factors which predicted end-of-quarter probation/suspension correctly for sixty percent of the subjects.

Early prediction of students who may find themselves experiencing academic difficulty, leading to involuntary withdrawal, has become a primary objective for many postsecondary institutions of higher education. With fewer students to draw from there is little wonder institutions are taking a closer look at the students they accept, in an attempt to better understand and assess how these students can be retained through graduation.

Several researchers are developing theories/models of attrition and retention. Tinto (1975) developed a longitudinal model which views persistence primarily as students' interactions with the social and academic systems of the institution. Pantages and Creedon (1978) developed an hypothesis they refer to as the "college fit" hypothesis. They state that the more satisfaction a student feels in his/her relationship with an institution, the more likely the student will stay.

Following Spady (1970), Tino (1975) and Cope and Hannah (1975), Pascarella and Chapman (1983) also assessed dimensions of academic and social integration. Variables included student background characteristics, institutional characteristics, academic and social integration, and institutional and goal commitment. Results with four-year residential students indicated that academic integration had neither a direct nor indirect effect on voluntary persistence while

social integration did have a significant direct effect. Institutional commitment yielded a much stronger direct effect than goal commitment. These findings have significant implications for a college serving a very diverse deaf population where "fitting in" might be more of a problem by virtue of the heterogeneity of the student population.

The current study is unique in that freshman deaf students were studied. Following Pascarella and Chapman (1983), students' early perceptions on how they view their academic and social experiences, and how they view themselves integrating into RIT/NTID's educational and social systems were the focus.

Method

Subjects

Ninety students in their first academic quarter in the School of Business Careers at the National Technical Institute for the Deaf (NTID) were voluntary participants. All were profoundly deaf, with a mean puretone hearing loss in the better ear of 95.9 dB. The range of hearing loss was from 53 dB to 120 dB. Subjects were 42% male with a median age of 21 years.

Questionnaire and Procedure

A 38-item Student Integration Survey (SIS) was developed which assessed various personal/social as well as academic aspects of subjects' high school and NTID experiences. The items were developed by an experienced counselor and teacher and an educational researcher in deafness so as to be understandable by the lower one-third of NTID's reading comprehension distribution. A five-alternative Likert response scale was employed for all items. The primary author administered the questionnaire in paper and pencil form in freshman business classes during the third week of their first academic quarter at NTID. The average number of students per class was ten.

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Analysis and Results

Several principal-component analyses with varimax rotations were performed on the questionnaire responses. The solution settled on yielded four factors, all with eigen values greater than 1.98. Following is a listing of factors and marker items.

- Factor 1: **Negative Affect regarding NTID**
 "I wish I had never come to NTID"
 "I am not happy with my major at NTID"
- Factor 2: **Difficulty at NTID**
 "I have difficulty paying my expenses to attend NTID"
 "I have difficulty understanding my teachers at NTID"
- Factor 3: **High School Adjustment**
 "I did not have good study habits during high school"
 "I did not ask my high school teachers for help"
- Factor 4: **High School Experiences**
 "My high school courses were difficult"
 "I did not participate in high school activities (e.g., sports, clubs, honor society, etc.)"

Preliminary subscales were formed on the basis of the factor analytic results. Item analyses were performed on each subscale to refine the composition of each and, concurrently, investigate the internal consistency reliabilities. This procedure resulted in the subscales each consisting of from 7 to 14 items. The subscore reliabilities ranged from .78 to .90. Scores for each subject were then calculated as the mean item response (coded from strongly agree (5) to strongly dis-

agree (1)) for all items within each subscale.

Table 1 shows the correlations among these scales as well as relationships with reading, simultaneous communication, speech reading, and math scores from Institute data files. As may be seen, the questionnaire subscales inter-correlated from .26 to .51 with each other. An examination of the correlations between each of the questionnaire subscale and Institute ability measures revealed that the two communication variables, "simultaneous communication" and "speech reading," significantly and negatively correlated with at least one of the questionnaire subscales. "Simultaneous communication" was negatively correlated with negative affect and NTID difficulty. Speechreading was negatively correlated with NTID difficulty (all p's < .05, two-tailed test).

Subjects' end-of-quarter GPAs were then obtained and employed to classify subjects into one of three groups. Group 1 was comprised of Ss whose end-of-quarter GPA was less than 2.00. This is the Institute criterion for academic probation (1.0 to 1.99) or suspension (GPA less than 1.0). Group 2 consisted of Ss whose GPA fell above 2.0 and was equal to or less than 3.0. Group 3 consisted of Ss whose GPA was greater than 3.0. Subjects were classified into three groups so as to avoid the assumption of a linear relationship between the questionnaire subscores and levels of GPA, the classification criterion for probation or suspension.

Several stepwise multiple discriminant analyses were then performed. One included the ability measures as well as the questionnaire subscales. Table 2 presents the means, standard deviations, and univariate F-ratios for each questionnaire

TABLE 1

**POOLED WITHIN-GROUPS SIMPLE CORRELATIONS
AMONG ALL INCLUDED VARIABLES**

Variables	1	2	3	4	5	6	7
1 HS Experience							
2 HS Adjustment	.40**						
3 Negative Affect	.26*	.47**					
4 NTID Difficulty	.47**		.49**				
5 Reading	-.04	-.08	-.04	-.15			
6 Simult. Comm.	-.09	-.04	-.25*	-.41**	-.45**		
7 Speech Reading	.02	.07	-.09	-.36**	.33**	-.54**	
8 Math	-.03	.07	.14	.14	.44**	-.03	.05

*p. < .05; **p. < .01 (two-tailed test)

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subscale from this analysis. As may be seen, HS experience, negative affect, and difficulty at NTID each significantly varied between groups (p 's < .05).

Table 3 presents statistics relevant to the final solution of the discriminant analysis. As shown, three of the four questionnaire subscales were significantly related to group membership (p 's < .01). Negative NTID affect, HS experience,

and high school adjustment were indicated as significantly discriminating variables. Inclusion of the ability and communication variables did not improve between-group discrimination.

Table 4 presents the predicted classification of cases based on the derived discriminant function. As shown, 60.0% of the Group 1 subjects were correctly classified on the basis of their discriminant scores. This provides prediction of

TABLE 2

MEANS, STANDARD DEVIATIONS, AND UNIVARIATE F-RATIOS FOR VARIABLES USED IN DISCRIMINANT ANALYSIS

Variables	Group ^a						F
	1		2		3		
	(n=30)		(n=29)		(n=26)		
	X	SD	X	SD	X	SD	
HS Experience	2.30	.79	2.26	.60	1.82	.56	4.04**
HS Adjustment	2.11	.77	1.95	.54	2.02	.49	ns
Negative Affect	2.52	.94	1.99	.63	1.90	.69	5.58*
NTID Difficulty	2.50	.72	2.22	.61	2.12	.53	3.01*

* p < .05; ** p < .02

^a Group 1: GPA < 2.0; Group 2: GPA \geq 2.0 and < 3.0; Group 3: GPA \geq 3.0

TABLE 3

SUMMARY OF STEPWISE DISCRIMINANT ANALYSIS

Step Variable	Wilks Lambda	Discriminant Function Coefficients	
		Standardized	Unstandardized
1 Negative Affect	.88**	.82	1.07
2 HS Experience	.83**	.64	.98
3 HS Adjustment	.87**	-.47	-.76
Constant			-2.80
Eigen Value			.19
Canonical Correlation			.40

** p < .01

TABLE 4

PREDICTED CLASSIFICATION OF CASES BASED ON DISCRIMINANT FUNCTION

Actual Group	Predicted Group						Prior Probabilities	Group Centroids
	1		2		3			
	n	%	n	%	n	%		
1	30	18 60.0	3 10.0	9 30.0	.33	.5319		
2	29	9 31.0	8 27.6	12 41.4	.33	-.0459		
3	28	4 14.3	5 17.9	19 67.9	.33	-.5223		

Overall % correctly classified = 51.72%

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probable suspension/probation and represents almost double the correct classification due to chance for Group 1 (i.e., the prior probability for Group 2 is .333). Overall, a correct classification of over 51% is shown.

Conclusions and Implications

One finding is that incoming deaf students who are having communication problems are more apt to experience difficulties and develop negative affect. Subsequently, they will be more likely to be placed on academic probation or suspension at the end of their first quarter than those who are not experiencing such problems. NTID routinely assesses incoming students' communication skills during a Summer Vestibule Program. Since this information is available prior to the onset of the Fall quarter, some type of remedial intercession should be possible. Such remediation might focus on problems associated with negative affect toward the Institute and social integration problems as well as communication per se.

It is also clear from the results that deaf students' end-of-quarter probation or suspension is predictable with 60 percent accuracy solely on the basis of information collected from the students during the third week of their first academic quarter. Such an early alert should allow sufficient time for counselor intervention which could then, initially, focus on students' specific problem areas, as indicated by particular questionnaire subscores and response patterns therein.

Lastly, the results suggest the relative lack of importance of reading and math scores in adding to the prediction of probation or suspension. Perhaps traditional academic ability measures in general do not facilitate the prediction above and beyond that provided by students' reports of certain high school and current activities, experiences and feelings. Even earlier and more accurate prediction may be possible with a more complete and/or more accurate set of such factors.

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